Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently amended) A scintillator assembly, comprising:

[[a]] an array of scintillator material comprising plural pixels of separated scintillator material, each[[,]] having outer surfaces of a first shape, and a bridge, holding together the plural separated pixels in a specified geometry; and

a preformed reflector, having plural inner surfaces which each mate with said ~~first shape~~ array of plural separated pixels, to contain each of said pixels of scintillator material of said array at least partly within said pre-formed reflector.

2. (Original) An assembly as in claim 1, wherein said inner surfaces of said pre-formed reflector press against outer surfaces of said scintillator material to hold said scintillator material within said preformed reflector.

3. (Previously presented) An assembly as in claim 1, further comprising an adhesive material, bonding said scintillator material within said pre-formed reflector.

4. (Original) An assembly as in claim 2, further comprising ridges within said preformed reflector, holding said scintillator material within said preformed reflector.

5. (Original) An assembly as in claim 1, further comprising an opening in the preformed reflector, at a specified location, corresponding to a specified location on the scintillator material.

6. (Previously presented) An assembly as in claim 5, wherein said opening is at a location of an exit window on the scintillator material.

7. (Original) An assembly as in claim 5, wherein said opening is at a location of a light guide input to or output from the scintillator material.

8. (Canceled).

9. (Original) An assembly as in claim 8, further comprising at least one air gap between a wall of the reflector and a surface of the scintillator material.

10. (Original) An assembly as in claim 9, further comprising a protrusion forming a spacer to form said air gap.

11. (Original) An assembly as in claim 1, further comprising a plurality of openings in the pre-formed reflector, at locations of a plurality of exit faces for the scintillator material.

12. (Original) An assembly as in claim 1, wherein the pre-formed reflector is formed of multiple pieces.

13. (Previously presented) The scintillator assembly of claim 1, in which at least one pixel has at least one exit window smaller than the area of a face of the pixel upon which ~~each~~ said exit window is defined.

14. (Previously presented) The scintillator assembly of claim 1, in which one or a plurality of said scintillator material, forming scintillator pixels is, shaped other than a rectangular parallelepiped.

15. (Canceled).

16. (Currently amended) The scintillator assembly of claim 1, ~~in which the assembly comprises an array of a plurality of scintillator pixels of said scintillator material and said reflector, and in which~~ at least one scintillator pixels of said array comprises at least one material differing from a second material of another scintillator pixels.

17. (Currently amended) The scintillator assembly of claim 1, in which at least one of ~~the~~ said scintillator material[[s]] varies in at least one cross-sectional area in at least one direction.

18. (Previously presented) The scintillator assembly of claim 1, in which said scintillator materials has at least one exit face that is not perpendicular to adjacent sidewalls of the material.

19. (Previously presented) The scintillator assembly of Claim 1, in which the reflector assembly is sufficiently flexible to permit insertion of said scintillator material by press fitting.

20. (Original) The scintillator assembly of claim 1, further comprising at least one optical fiber inserted into said scintillator material.

21. (Original) The scintillator assembly of claim 20, in which said optical fiber is used for wavelength shifting.

22. (Currently amended) The scintillator assembly of claim 9, further comprising at least one optical fiber inserted into or passing through said at least one air gap between one or a plurality of said units and said reflector.

23. (Original) The scintillator assembly of claim 22, in which said at least one optical fiber is used for wavelength shifting.

24. (Previously presented) The scintillator assembly of claim 1, further comprising at least one of inorganic or organic materials as an additive to the reflector material of said pre-formed reflector assembly.

25. (Previously presented) he scintillator assembly of claim 24, in which titanium dioxide is an additive to the reflector material of said preformed reflector.

26. (Previously presented) The scintillator assembly of claim 24, in which one or a plurality of aluminum oxide, aluminum orthophosphate, antimony trioxide, antimony tetroxide, barium oxide, barium carbonate, barium molybdate, bismuth oxybromide, bismuth oxychloride, bismuth oxyfluoride, calcium aluminate, calcium hydride, calcium peroxide, calcium trialuminate, calcium triorthophoshate, calcium tungstate, hafnium oxide, lanthanum oxide, magnesium carbonate, magnesium oxide, strontium peroxide, tin dichloride, zinc oxide, zirconium tetrachloride, and zirconium tetraflouride is an additive to a material of the reflector.

27. (Previously presented) he scintillator assembly of claim 24, in which one or a plurality of high-Z, high-density materials from the group consisting of bismuth, bismuth oxychloride, bismuth oxyflouride, gold, hafnium, hafnium oxide, iridium, lanthanum, lanthanum oxide, lead, lead oxide, osmium, platinum, platinum phosphide, rhenium, tantalum, tungsten, and

other inorganic compounds of heavy metals is an additive to a material of the reflector.

28. (Previously presented) The scintillator assembly of claim 24, in which at least one scintillating material from the group consisting of barium fluoride, cerium-activated bismuth germanium oxide (BGO), cadmium tungstate, sodium-doped cesium iodide, thallium-doped cesium iodide, cerium fluoride, europium-doped calcium fluoride, terbium-activated glass, europium-doped lithium, cerium-activated lithium glass, cerium-activated gadolinium silicate (GSO), lanthanum bromide, lanthanum chloride, thallium-doped sodium iodide, cerium-activated yttrium aluminum garnet (YAG), cerium-activated yttrium aluminum perovskite (YAP), cerium-activated lutetium orthoaluminate (LuAP), cerium-activated lutetium orthosilicate (LSO) and organic scintillators is an additive to the material of the reflector.

29. (Original) The scintillator assembly of claim 1, in which one or a plurality of organic optical brightening agents is an additive to the reflector.

30. (Previously presented) The scintillator assembly of claim 1, in which said preformed reflector is formed of polyethylene filled with one or a plurality of additives.

31. (Previously presented) The scintillator assembly of claim 30, further comprising titanium dioxide as an additive to said polyethylene.

32. (Previously presented) The scintillator assembly of claim 30, in which at least one of aluminum oxide, aluminum orthophosphate, antimony trioxide, antimony tetroxide, barium oxide, barium carbonate, barium molybdate, bismuth oxybromide, bismuth oxychloride, bismuth oxyfluoride, calcium aluminate, calcium hydride, calcium peroxide, calcium trialuminate, calcium triorthophoshate, calcium tungstate, hafnium oxide, lanthanum oxide, magnesium carbonate, magnesium oxide, strontium peroxide, tin dichloride, zinc oxide, zirconium tetrachloride, and zirconium tetraflouride is an additive to said pre-formed reflector.

33. (Previously presented) The scintillator assembly of claim 30, in which one or a plurality of high-Z, high-density

materials from the group consisting of bismuth, bismuth oxychloride, bismuth oxyflouride, gold, hafnium, hafnium oxide, iridium, lanthanum, lanthanum oxide, lead, lead oxide, osmium, platinum, platinum phosphide, rhenium, tantalum, tungsten, and other inorganic compounds of heavy metals is an additive to the reflector assembly of a pre-formed said pre-formed reflector.

34. (Previously presented) The scintillator assembly of claim 30, in which one or a plurality of scintillating materials from the group consisting of barium fluoride, cerium-activated bismuth germanium oxide (BGO), cadmium tungstate, sodium-doped cesium iodide, thallium-doped cesium iodide, cerium fluoride, europium-doped calcium fluoride, terbium-activated glass, europium-doped lithium, cerium-activated lithium glass, cerium-activated gadolinium silicate (GSO), lanthanum bromide, lanthanum chloride, thallium-doped sodium iodide, cerium-activated yttrium aluminum garnet (YAG), cerium-activated yttrium aluminum perovskite (YAP), cerium-activated lutetium orthoaluminate (LuAP), cerium-activated lutetium orthosilicate (LSO) and organic scintillators is an additive to said pre-formed reflector.

35. (Previously presented) The scintillator assembly of claim 30, in which one or a plurality of organic optical

brightening agents is an additive to the reflector assembly of ~~a~~ said pre-formed reflector.

36. (Original) The scintillator assembly of claim 30, in which the pre-formed reflector assembly is formed by injection molding.

37. (Currently amended) A method, comprising:

pre-forming a reflector array having plural individual pixels, each of a specified shape having specified shaped inner surfaces; and

attaching said reflector to an array of [[a]] scintillator material formed of separated pixels of scintillator material that are held together, each pixel shaped to fit within one of said individual pixels of said array ~~of a shape that fits within said inner surfaces~~.

38. (Original) A method as in claim 37, wherein said attaching comprises using pressure of an outer surface of said scintillator material against a pressure of an inner surface of said reflector to hold said scintillator material within said reflector.

39. (Original) A method as in claim 37, further comprising attaching said scintillator material to said reflector by an adhesive.

40. (Previously presented) method as in claim 37, wherein said performing comprises pre-forming a reflector having at least one opening therein.

41. (Previously presented) A method as in claim 40, wherein said at least one opening mates with an exit window on the scintillator material.

42. (Original) A method as in claim 40, wherein said at least one opening includes a light guide input to or output from the scintillator material.

43. (Previously presented) A method as in claim 37, wherein said reflector has a specified shape to hold a plurality of separate units of said scintillator material.

44. (Original) A method as in claim 43, further comprising forming at least one air gap between adjacent scintillator material surfaces.

45. (Previously presented) An assembly as in claim 1, wherein said preformed reflector has a plurality of continuous surfaces which extend from a first portion on the scintillator material near a first end thereof, to a second portion on the scintillator material near a second opposite end thereof, and continuously extends between said first and second portions.

46. (Currently amended) A method as in claim 37, further comprising using said reflector to reflect scintillation photons back into ~~radiation to~~ said scintillator material.

47. (Previously presented) A method as in claim 37, wherein said forming a reflector comprises forming a plurality of continuous surfaces which extend from a first portion on the scintillator material near a first end thereof to a second portion on the scintillator material near a second opposite end thereof, and continuously extending between said first and second portions.

48. (New) An assembly as in claim 1, wherein said array of scintillator material which is held together by said bridge is a two-dimensional array.

49. (New) An assembly as in claim 48 wherein said array is a 4x4 array of scintillator material.

50. (New) An assembly as in claim 13, wherein at least one of said scintillator pixels has a first portion at one end which is substantially constant and rectangular in cross section, and has a second end which reduces in area between said substantially constant cross-section and an end section which forms an exit window of the scintillator material.

51. (New) An assembly as in claim 1, wherein said preformed reflector has, for each pixel, four completely solid walls, completely surrounding walls of said pixel.

52. (New) A method as in claim 37, wherein said array of scintillator material is a two-dimensional array.